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Evaluation of A.I.D. Child Survival Programs: Morocco Case Study

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Foreword

In the mid-1980s, the Agency for International Development (A.I.D.) greatly expanded its program of child survival activities areound the world. As part of a review of this program, the Center for Development Information and Evaluation (CDIE) is undertaking a series of evaluations to provide A.I.D.'s policymakers and senior managers with information on the impact of the Agency's child survival program.

In 1990, a four-person evaluation team spent 4 weeks studying the impact of child survival programs in Morocco. The purpose of the evaluation was to assess the impact of A.I.D.'s child survival activities on (1) reducing infant and child mortality in Morocco and (2) strengthening Morocco's primary health care system. The intended audience of the report is A.I.D. policymakers and managers. However, it is hoped that the observations will also prove useful to Moroccan colleagues and to colleagues in the other agencies. Our chief concern is that child survival programs still in a nascent stage of development or grappling with problems of sustainability and rapid change are able to learn from the Morocco experience.

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Summary

Program History

During the past 15 years, the Agency for International Development (A.I.D.) has provided more than $50 million to family planning and maternal and child health (MCH) activities in Morocco, principally through a succession of four projects. Beginning with a focus on family planning, A.I.D. assistance has evolved into an integrated family planning and MCH effort carried out primarily through an outreach program known as Visite a Domiciles de Motivation Systematique (VDMS). In 1986, A.I.D. provided additional funds from the Child Survival earmark to the national program for immunizations, with lower levels of funding provided in subsequent years to diarrhea control and nutrition surveillance. Currently, the A.I.D.-assisted Child Survival Program in Morocco comprises four components: family planning and immunization, which have received substanial A.I.D. financing, and control of diarrhea disease and nutritional surveillance, which have received considerably less support.

Program Impact

The Family plannnig and immunization programs have both bee effective: Contraceptive use in Morocco is becoming more widespread, birth intervals are increasing, and the fertility rate is going down. Moreover, vaccination coverage is going up, mortality from immunizable diseases is dropping, and reported incidence of vaccine-preventable disease has dropped at rates consistent with coverage (80 percent). A.I.D.'s success in combatting diarrhea disease, however, only slight improvement in knowledge and use of oral rehydration therapy. And although nutritional status in the country has improved since 1971, when a baseline study was conducted, the improvement is probably due more to a general improvement in the Moroccan standard of living than to A.I.D. programs.

The Morocco experience has demonstrated the value of offering selected

child interventions as an integrated package. And it gave A.I.D. a unique opportunity to test the potential of this approach, since the VDMS Program, although launched as a family planning effort, soon evolved into an integrated outreach effort in which health workers delivered a package of MCH and family planning interventions that closely corresponded to A.I.D.'s central child survival program activities. Thus, despite differences in intensity in the administration of the four components at the national level, the Morocco Child Survival Program in remarkably well integrated at the service-delivery level. This integration means that mothers seeking diarrhea control and nutritional services as well, thus ensuring that mothers seeking health care for treatment of an acute problem, such as diarrhea or acute malnutrition, are then encouraged by health workers to have thier children immunized and to use family planning services or, if appropiated, to begin prenatal care.

Efficiency and Sustainability

Although it is difficult to quantify precisely the program's efficiency, one cost-denefit analysis of family planning showed that the Government's investment in this intervention would be paid back within 2 years as a result of reduced public spending in health and education. Another analysis suggested that the urban VDMS model was not cost-efficient and contributed to the Government's decision to phase out that aspect of VDMS Program. Figures on costs of other interventions were not available at the time of the evaluation. However, there were a number of efficiency of concerns within the health system: underutilization of fixed health facilities; insufficient numbers of paramedical staff, particularly female health workers; and inadequate use of eperatons research as a method to test the many program decisions that have been made (e.g., dropping the urban VDMS worker).

Program sustainability is another conern. Donors seem to be withdrawing funding support of child survival activities, and some donor program inputs (e.g., those substituting for the Government's contribution to vaccine purchase) appear to have mitigated against sustainability by national resources. Maintaining surrent contraceptive prevalence rates and vaccination converage will be extremely difficult given the increasing numbers of women and children entering the target age groups, particulary if donor support phases out as scheduled. On a more positive note, the Government is taking action to make overall management efficient, and USAID/Morocco is attempting to shift some health care costs to the private sector.

The Future

Several major developments over the last decade, reflecting A.I.D. imputs and other factors, suggest a variety of new directions for A.I.D. assistance during the 1990s. These developments include an apparent leveling off of contraceptive prevalence, with a contraceptive mix skewed sharply toward the use of temporary

methods (oral pill, for example, constitute 80 percent of contraceptive use); a sharp decline in incidence of some communicable diseases, freezing resources for greater efforts to combat such childhood diseases as poliomyelitis and to reduce the high rates of neonatal mortality through better prentatal care; and concerns for coverage of urban areas no longer covered by the VDMS Program and some remote rural areas.

These developments point to a need for greater emphasis on longer lasting contraceptive methods (e.g., intrauterine devices [IUDs]) and on increasing the demand for family planning; higher priority for disease surveillance, pregnancy monitoring, and prenatal care; greater attention to the information, education, and communication (IEC) aspects of A.I.D's Child Survival Program and the potential for cooperation in providing those services; and monitoring of trends teward privatization and decentralization for unintended adverse impacts on the health status of mothers and children.

Key Factors Influencing Program Performance and Impact

Several factors have influenced the course of the A.I.D. Child Survival Program in Morocco. Although the worsening economic climate and cultural and geographic barriers are negative backdrops in the Morocco setting, these have been countered to some extent by strong Ministry of Public Health commitment to integrated primary health care and the Ministry's pragmatic approach to timing program interventions, including its concern for having the infrastructure in place before phasing in outside resources. Another positive aspect of the program has been the effective coordination of donor inputs.

Lessons Learned

A number of the lessons learned from the Morocco experience confirm the wisdom of both the evolution and the current configuration of the Morocco VDMS/Child Survival Program. Among them are the following:

- Providing a selected number of child survival interventions as a package is a more effective approach than offering each separately.

- Giving priority to family planning and immunization is a valid strategy for a child survival program.

- Delivering child survival interventions through a rural outreach program is a highly effective approach to implementing program activities.

- Careful phasing in of activities can lead to a more successful program.

- The Morocco model is replicable, but its success cannot be divorced form the context in which it functions.

A family planning program can be successfully initiated even in the absence of a stated public policy.

If properly motivated, public health workers will deliver good health care to rural populations.

Reliable data can make a useful contribution to planning and evaluating programs.

The private sector must be involved as early as possible.

Glossary

A.I.D.	Agency for International <R>Development
CDIE	Center for Development Information and Evaluation (A.I.D.)
CYP	couple-years of protection
DHS	Demographic and Health Survey
ENE	Bureau for Europe and Near East
EPI	Expanded Program of Immunization
GNP	gross national product
IEC	information, education, and communication
INAS	National Institute of Health Administration
IUD	intrauterine device
KAP	knowledge, attitudes, and practices
MCH	maternal and child health
ORS	oral rehydration salts
ORT	oral rehydration therapy
SSB	Soins de Santé de Base (primary health care)
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
VDMS	Visite à Domiciles de Motivation Systématique

WHO World Health Organization

Introduction

The Morocco Child Survival Program is one of several country programs that the Agency for International Development's (A.I.D.) Center for Development Information and Evaluation (CDIE) is assessing in a global review of child survival efforts. The purpose of the impact evaluation is to determine whether A.I.D. investments in these programs have been effective in (1) efficiently reducing infant and child mortality and morbidity and (2) enhancing the system of host country primary health care services. The Morocco case differs from others reviewed in that A.I.D. investments in child survival in Morocco began in the early 1970s with family planning and remain strongly oriented in that direction. These early efforts provide the framework and management systems for other child survival efforts.

The Morocco impact evaluation further attempts to assess the relevance of A.I.D.'s investments in family planning and other child survival components to the problems that existed when the effort began and to the evolving Morocco mother and child health (MCH) program. This evaluation should give A.I.D. managers an alternative model for fashioning child survival programs and will assist the managers of the Mission and the Bureau for Europe and Near East (ENE) as they undertake dialogue with the Government of Morocco on different approaches to financing child survival interventions.

The A.I.D. Child Survival Program has provided technical assistance to address identified health needs. The success-and the problems-of the program are attributed to the way it was implemented and managed rather than to startling innovations or new technology. Lessons to be drawn from the Morocco program are relevant to A.I.D.'s efforts in sectoral programming. The program has recently begun to study and experiment with alternative ways of delivering services and of financing health care. Innovative implementation and management systems, with which there is growing experience in Morocco, must be put in place if a more market-oriented health delivery approach is to be attained.

Country Setting

Population

The population of Morocco is just over 25 million and will double in 27 years at the current rate of increase of 2.6 percent per year. The configuration of Morocco's population is typical of most developing countries: over 40 percent of the population is under 15 years of age while only 4 percent is over age 65 (see Figure 1). Although the total fertility rate of 4.6 births per woman is high, it has fallen from the 1980 rate of 5.8 births per woman.

The vast majority of the Moroccan population is Sunni Muslim; less than 1 percent of the population is Jewish or Christian. Most people live in the agriculturally rich western part of the country, separated from the Sahara desert by the Atlas Mountains. Forty-seven percent of the population live in urban areas. Much of this urbanization took place during the 1980s.

Morocco's educational system has grown significantly since 1956. Education is the largest single item in the national budget (28 percent), with a good portion of the education budget financing higher education. Although education is compulsory through primary school, almost two-thirds of the population remains illiterate.

Economy

In 1985, 39 percent of the population worked in the agricultural sector, which employs more people than any other sector of the economy. Agricultural production includes wheat, barley, citrus fruits, and vegetables. Industry is the next largest employer, which in 1985 employed 17.9 percent of the work force.

Morocco has several natural resources of which phosphates are the most important. Morocco is the world's third largest producer of phosphates, after the United States and the Soviet Union, and the world's leading phosphate exporter. Fisheries are the second most important natural resource, and the Government is currently trying to further develop this resource.

Over the 1965-1987 period, per capita gross national product (GNP) in Morocco rose at an annual rate of 1.8 percent. Increases in GNP throughout the 1970s reflect an economic boom engendered by high world-market prices for heavily demanded phosphates. The economic situation slowed considerably in the l980s. Per capita GNP peaked at $880 in 1980 then plummeted to $560 in 1985. In 1987, the GNP was at $610.

Morocco must import about 90 percent of its energy used for commercial purposes, making energy the country's largest import. Morocco also imports significant amounts of basic food grains; 2,251 thousand metric tons of food grains were imported in 1987, two-and-one-half times the 1974 level.

Health Status

Infant and child mortality rates in Morocco have decreased steadily over the past several decades. Infant mortality has fallen from an estimated 122 deaths per 1,000 live births in the early 1970s to 82 deaths per 1,000 live births in the late l980s. Indeed, compared with other countries at its general level of development, as well as with other countries in the Maghreb region, Morocco has relatively low levels of infant mortality (see Figure 2). Table 1 illustrates this general downward trend, but because the data are adapted from several sources, they do not provide sufficient detail for a meaningful comparison between adjacent 5-year periods. Child mortality has also

fallen during the same period, from an estimated 77 deaths per 1,000 children ages 1-4 years to 19 per 1,000 (Ross et al. 1988). The crude death rate has been declining as well, from 15.7 deaths per 1,000 between 1970 and 1975 to a projected 8.3 deaths per 1,000 for the 1990 to 1995 period (see Figure 3).

According to the most recent data (Garenne 1989), the major underlying causes of neonatal death are premature birth, complications during delivery, neonatal tetanus, acute respiratory infection, and low birth weight (see Figure 4). The 1987 Demographic and Health Survey (DHS) (see Appendix, No. 11) shows there are significant urban-rural differences in the health status of children. Children in rural areas have a 38-percent higher risk of dying before their fifth birthday than do urban children. The mortality levels are also higher for children whose mothers are illiterate, who are born less than 2 years after a sibling, or whose mothers are not yet 20 years old.

One of the major causes of infant mortality is diarrhea. One in four children under age 5 years had diarrhea in the 2 weeks prior to the DHS. Only 16 percent of these children were treated with oral rehydration salts (ORS) and 45 percent received no treatment.

Immunization of children against the major childhood diseases of tuberculosis, diphtheria, whooping cough, poliomyelitis, and measles is a particular focus of child survival efforts in Morocco. In 1987, according to the DHS, about 84 percent of children between ages 12 and 23 months had received at least one immunization, but only 31 percent of those were documented as having completed the full course of immunization. However, a 1989 study (see Appendix, No. 12) reported that following intensive immunization campaigns in 1987, 1988, and 1989, 73 percent of children between ages 12 and 17 months were documented as having completed vaccination. (Coverage figures based on vaccination cards and mothers' reports show 88 percent coverage.) These figures reflect a substantial increase in coverage rate.

A recent analysis (Garenne 1989) of causes of infant and child mortality in Morocco estimates that nearly 77 percent of all deaths were potentially avoidable. Of these, 25.7 percent appeared preventable through a combination of hospitalization and antibiotic treatment (e.g., dysentery, typhoid, pneumonia, laryngitis, meningitis, and septicemia), 22 percent were preventable through treatment of diarrhea and malnutrition, 16.5 percent were preventable through pregnancy, delivery, and newborn care (e.g., prematurity, low birth weight, and birth trauma), and 12.8 percent were preventable through vaccinations (e.g., measles, pertussis, tuberculosis, tetanus, hepatitis). The study also notes that in 89 percent of cases of child death, the child was not admitted to a hospital when his or her condition required it, and in half the cases the child was not seen by qualified health care personnel.

The data in Table 2 show a steady downward trend in the total fertility rate, and Figure 3 shows the corresponding decline in the crude birth rate. Again, these data were obtained by adapting estimates from several sources, so that the data do not permit meaningful comparisons between adjacent 5-year periods. They suggest, however, that the greatest decline in fertility has occurred during the past 20 years. Moreover, a more detailed analysis by Housni (1990) shows that the fertility decline prior to 1980 was limited to urban areas. The factors that contributed to this decline included older age at marriage, increased use of contraceptives, and abortion. More recent declines in fertility have been largely due to continuing increases in the age at marriage and to dramatic increases in contraceptive prevalence, from an estimated 19 percent in 1979-1980 to 36.9 percent in 1987 (see Table 3). By 1987 almost 30 percent of married women were using modern contraceptive methods (ENPS, Ministère de la Santé Publique 1987). Approximately 80 percent of women using a modern contraceptive method were using oral contraceptives, and approximately 80 percent of contraceptive users obtained their services from the public health sector.

Health Policy and Services

During the past 10 years, the rates of growth in investment and operating budget allocations for the Ministry of Public Health have only slightly exceeded the rate of inflation. Because of budgetary constraints, the Government of Morocco intends to revise its health policy to emphasize cost recovery and to orient services away from hospitals toward primary health care services. The goal is to provide integrated, community-based services, focusing on MCH through such measures as diarrhea control and nutrition programs, an enlarged vaccination program, upgraded MCH services, and an expanded health infrastructure.

During the 1970s and 1980s, the Ministry of Public Health expanded the number of dispensaries and health centers from 787 facilities in 1972 (213 urban and 574 rural) to 1,577 in 1988 (with two-thirds of the facilities located in rural areas). At the same time, the Ministry increased the number of hospital beds by 16 percent. As a result of this expansion the number of paramedical workers increased from 7,600 in 1972 to more than 21,000 in 1985. However, due to budgetary constraints, the hiring of paramedical staff since that time has been drastically reduced, severely affecting staffing in rural areas; only about 900 entry-level nurses were hired between l985 and l988.

During the past 12 years, Morocco has developed an innovative community-based distribution program called Visite à Domiciles de Motivation Systématique (VDMS). The VDMS Program provides integrated family planning and preventive MCH services to women who live more than 3 kilometers from fixed health facilities in rural areas of Morocco (60 percent of the rural population). The program was launched with A.I.D. support in 1977 as a pilot project in Marrakech Province and initially

focused solely on family planning. Regular program activities started in three provinces in 1982.

In 1980, negotiation to expand the VDMS Program from the pilot study area to the first three provinces resulted in the addition of preventive health services. Although A.I.D. initially resisted the effort to dilute the emphasis on family planning, it eventually reached a compromise. Subsequently, health workers began providing baby weighing, oral rehydration therapy (ORT), nutrition, and vaccination counseling and referral, as well as family planning services.

With the advent of the Congressional Child Survival earmark, the A.I.D. program became increasingly focused on child survival, as defined chiefly by the four interventions examined in this report. Because the VDMS Program also supports these interventions, it became subsumed under the Child Survival Program. Today, VDMS has expanded to 30 provinces covering about 75 percent of Morocco's rural population. By the end of 1990, the program was to have been extended again to include 12 additional provinces.

Initially the VDMS strategy was to focus on areas of large population concentration, reflecting the idea that program interventions could be introduced cost-efficiently to serve a large population. (The United Nations Population Fund [UNFPA], by contrast, started its interventions in provinces where needs were greatest.) The 1987 DHS demonstrated, however, that the VDMS strategy was not uniformally appropriate. In urban areas, providing supplies through itinerant workers proved very costly because of the availability of alternative sources. The strategy was subsequently dropped (for further discussion of program costs and benefits, see page 14, Cost-Benefit Analysis: An Example From Family Planning).

Under the VDMS Program, Ministry health workers serve as staff of village-based periodic outreach centers; these workers visit households to motivate women to use contraceptives and provide them with pills and condoms, make referrals for intrauterine devices (IUDs) and sterilization services, provide vaccination referrals, distribute ORS packets and instruct women in their use, conduct growth-monitoring surveillance, and distribute nutrition supplements to malnourished mothers and children.

A.I.D. assistance permitted the development of training modules, designed specifically to help the VDMS worker master his, or less frequently her, assigned tasks in child health. In addition, parallel long-term A.I.D. training scholarships in management and public health have contributed to the development in the provinces of cadres of health workers who are more able to manage available resources.

The number of public-and private-sector physicians in Morocco increased from roughly 1,000 in 1972 to 4,946 in 1988 (2,759 public sector physicians and 2,187 private practitioners). The

number of doctors is now sufficient for the needs of the Ministry of Public Health system, although distribution problems still exist in some regions.

Donor Assistance to the Health Sector

Morocco has received health-and population-sector assistance from the World Bank, World Health Organization (WHO), and various U.N. agencies like UNFPA, United Nations Children's Fund (UNICEF), United Nations Educational, Scientific, and Cultural Organization (UNESCO).

The World Bank is currently supporting the 1986-1991 Health Development project (with a total budget of $47.6 million of which $28.4 million represents the World Bank loan and the rest Government of Morocco contributions). The pilot project has assisted the Ministry in supporting a cost-effective system of primary care, including family planning, in three provinces. A follow-on loan of $104 million from the World Bank will help continue the effort nationwide and will include an important component to upgrade emergency care in urban hospitals and to modernize Morocco's clinical facilities.

Support from U.N. agencies covers a wide variety of health and population projects. The cumulative budget for the 1976-1987 period totals more than $11 million in assistance with about $4 million more planned through 1990. U.N. assistance has been particularly important for immunization and ORT. The UNFPA has provided key complementary inputs to support the VDMS strategy and the census. It has strengthened the Center for Demographic Research in the Ministry of Planning and has applied the World Bank primary health care model in four difficult provinces. UNICEF has provided a broad range of health interventions, including vaccines and promotion for the vaccination campaigns.

The USAID/Morocco Child <R>Survival Program

Overview

Although family planning and MCH services represent only a small part of overall U.S. assistance to Morocco, A.I.D. -- with obligations of about $50 million during the past 15 years -- has been a major contributor in this area (see Table 4). Reduced fertility, decreased infant and young child death, and increased financial sustainability of health programs are key objectives of A.I.D. assistance to Morocco. Overall assistance to the health, population, and nutrition sectors is intended to reduce fertility and early childhood death rates by improving access to and use of family planning and MCH services.

A.I.D. support has evolved from a program focused on family planning to an effort comprising a broader scope of child survival intervention. Four projects have been carried out over the past 15 years:

Family Planning Support project (608-0112), authorized in l971

Population and Family Planning Support project (608-0155), authorized in l978

Population and Family Planning Support project (608-0171), authorized in l984

Family Planning and Child Survival IV project (608-0198), initiated in 1990

Table 4. Share of Health/Population Activities in the USAID/Morocco Program (obligations in million dollars)

Year	Total Assistance{a}	Health/ Population	Percent of Total Assistance
1975	22.0	0.8	3.6
1976	43.3	1.3	3.0
1977	28.5	1.2	4.2
1978	34.5	0.5	1.4
1979	25.0	2.0	8.0
1980	24.8	3.0	12.0
1981	53.3	3.4	6.3
1982	60.1	2.2	3.6
1983	51.3	1.7	3.3
1984	81.0	5.2	6.4
1985	111.0	4.3	3.8
1986	84.3	6.2	7.3
1987	89.3	4.8	5.4
1988	91.4	5.0	5.5
1989	95.5	4.4	4.6
1990	102.9	5.2	5.0

{a} Total assistance includes Development Assistance PL 480, Economic Support Fund, and so on.

Source: USAID/Morocco

Early Focus on Family Planning

USAID/Morocco assistance began in l971 with the Family Planning Support project (608-0112), which provided $6 million to finance public sector family planning reference centers, a family planning headquarters in Rabat, participant training, and contraceptive and other commodities. In 1976, major changes in the program were suggested to correct serious deficiencies in service delivery and accessibility. In 1978, A.I.D. estimated that the contraceptive prevalence rate was still only 12

percent and that roughly half of the contraceptives used were being provided by the private sector. It was during this time that A.I.D., through a centrally funded project, successfully supported the Government's pilot effort to test home delivery of family planning services (i.e., VDMS) in the Marrakech Province. In 1978, the VDMS concept was embodied in an ambitious follow-on project (Population and Family Planning Support project, 608-0155), which provided $11 million and succeeded in increasing contraceptive prevalence by more than 100 percent, increasing public awareness of and political commitment to family planning, and generating new demand for family planning services.

Broadening the Focus

A major departure from USAID/Morocco's tight focus on family planning began during the course of the Population and Family Planning Support project authorized in l984. Over the life of the project, 13 subprojects were planned and 12 were successfully implemented; marketing of contraceptive products was the exception. The 1984 Population and Family Planning Support project, conceived as a continuation of the earlier family planning efforts, was amended in 1986 to provide substantial assistance to the Government of Morocco's National Program for Immunization. The refocus was a result of the Government's strong request that the family planning program be integrated into the MCH program and of the availability of funds from the Child Survival earmark. Further amendments in 1987 and 1988 added diarrhea control and nutrition surveillance as child survival interventions. A.I.D. thus became a partner with the Ministry of Public Health in applying the VDMS model to support four child survival interventions: child spacing, immunizations against major childhood diseases, ORT for diarrhea, and nutrition surveillance, including promotion of breast-feeding and good weaning practices.

Sustaining the recently expanded family planning and MCH services has been a point of concern for the Family Planning and Child Survival IV project, which began in 1990. In addition to broadening and strengthening family planning and MCH coverage in both rural and urban areas, the project is exploring alternatives in health care financing to reduce the burden on the public sector for such care. A Health Care Financing project, to begin in 1991, will help the Government of Morocco carry out an overall reform of its system of financing health services by creating a more sustainable financial base for child survival and other preventive services.

Other U.S.-Assisted Programs With Child Survival Implications

Since the 1960s, the Mission PL-480, Title II program, implemented by Catholic Relief Services, has provided supplementary food rations for the poorest segments of Morocco's population. In addition, since the 1970s, the MCH feeding program, organized through the Ministry of Social Affairs, has provided food

supplements and nutrition education to 150,000 mothers and their two youngest children. Although a 1980 impact assessment (Gilmore et al.) concluded that the MCH feeding program (particularly the nutrition education component) was having a positive impact on the nutritional status of the target population, the program is currently inadequately supported by the Ministry of Social Affairs and does little more than food distribution. The program keeps neither weight nor height measurements, and there is no way to determine a positive impact from the current investment. The phase-out of the program was to have been completed in 1990. In the mid-1980s, the A.I.D. Health Management project helped strengthen the management of health personnel, vehicles, materials, and commodities and prepare the Ministry of Public Health for better management of data used for making resource-allocation decisions. A.I.D. also supports a domestic food production strategy designed to increase the availability of basic staples to those for whom food constitutes the principal expenditure of income. Agribusiness programs have been planned to create jobs and export earnings. Through policy analysis, A.I.D. has supported efforts to mitigate the adverse impact of food price increases on the poor, which occur with economic structural adjustment.

Through a Rural Water and Health/Sanitation Extension project, the Peace Corps is working with rural villages on the prevention and control of water-and sanitation-related illnesses, as well as the promotion of good health through better hygiene.

Development Results and Impact

This section examines the performance of the Child Survival Program in terms of its effectiveness, efficiency, sustainability, and relevance and then studies the impact of the overall program in reducing infant and child mortality.

Program Effectiveness

This assessment of the Morocco Child Survival Program is based on a review of reports of a variety of surveys (see Appendix) that measured coverage levels of the four program components. Although considerable data on family planning and immunization are available to support an analysis of trends in these areas, fewer data exist for assessing nutrition and diarrhea control.

Family Planning and the VDMS Program Lead the Way

The Morocco Child Survival Program differs in two striking ways from most other child survival programs that typically rely on the Expanded Program of Immunization (EPI) and control of diarrheal diseases as their primary strategies. First, in Morocco, family planning has played a pivotal role in the implementation and success of the whole program. Second, child survival funds in Morocco are being applied in the context of the VDMS, an indigenous, integrated outreach effort that appears to have

succeeded in attracting women by offering valued services related to such problems as acute diarrhea and then leading them to adopt the more effective family planning and immunization interventions.

Although data are limited, indications are that the A.I.D.-financed family planning program has been effective not only in reducing fertility but also in contributing to child survival through birth spacing. The general trend of fertility, based on periodic fertility surveys, documents a decline in the birth rate (see Table 2 and Figure 3). The 1987 DHS data show that the number of children nationwide spaced at least 2 years apart has increased from 44.5 percent to 55.3 percent since the 1979-1980 Moroccan World Fertility Survey. The relationship between birth spacing and infant mortality is shown in Figure 5. Children born in intervals greater than 4 years are only one-third as likely to die before their first birthday as are those born less than 2 years after their sibling.

Table 5. Differences in Health Practices Related to Child Survival, Selected Indicators for Project Assistance Areas, 1987 (percentage)

	VDMS	Non-VDMS
Children with a Health Card	34	25
Women Who Did not Receive Prenatal Care	85.6	90.3
Most Recent Birth:		
Assisted by doctor, nurse, or midwife	10.8	8.8
Assisted by birth attendant	73.5	62.5
Other	16.0	28.6
Children With Diarrhea	33.2	41.5
Use of ORS	14.0	6.0

Source: Future Group: OPTIONS Project. Primary Analysis of Morocco, 1987 DHS data, (see Appendix, No. 11).

Family planning has not only made an important direct contribution to declines in infant mortality throughout Morocco, it has also made an important indirect contribution to this decline through the role it has played in the development of the VDMS Program. A set of special tabulations of the 1987 DHS data were prepared

for this evaluation, which compare characteristics of the Child Survival Program between VDMS and non-VDMS areas while attempting to "net out" the effect of other development variables by limiting the analysis to that of rural uneducated women. These data, presented in Table 5, show a consistent pattern of more favorable health practices (i.e., immunization, attended births, prenatal care, use of ORS to treat diarrhea) and lower incidence of diarrhea in VDMS provinces. There are two reasons for this: First, VDMS is an outreach effort that brings valued health services to rural woman, who otherwise would have to travel to a distant clinic. Second, VDMS is an integrated program through which health workers can encourage women who come to them for treatment of acute problems like diarrhea or malnutrition to use family planning and immunization services. From the standpoint of infant and child health, the relatively cost-effective interventions of family planning and immunization may thus reinforce the less effective interventions for diarrhea and malnutrition.

Approaching WHO's Vaccination Coverage Objective

As a result of improvements in vaccination coverage, it appears that diphtheria, measles, and whooping cough have virtually been eradicated, giving the Government an opportunity to place more attention on prenatal monitoring, neonatal tetanus, and poliomyelitis.

The National Program for Immunizations, which included interventions to prevent diphtheria, measles, tetanus, whooping cough, and poliomyelitis, started in Morocco in 1981. Coverage climbed slowly until 1986, when it plateaued. At that point, only half of all children under age 1 year (the target population) were fully immunized. With strong encouragement from UNICEF and support from A.I.D., the program revised its strategy in 1987 to accelerate activities and achieve WHO's Universal Childhood Immunization objective of 80 percent coverage by 1990.

At the heart of the new strategy was the National Vaccination Days campaign. In October 1987, a campaign was launched that rallied support from donors -- principally UNICEF, A.I.D., and Rotary International -- and from Moroccan governmental and nongovernmental organizations. UNICEF in particular provided vaccines, a service that previously had been the responsibility of the Government. The campaign was marked by a massive social mobilization effort to elicit public support for the intervention. Private sector media resources were made available, which helped considerably in drawing public attention to the campaign. In its three rounds (October, November, and December) the campaign succeeded in providing the complete course of vaccinations to more than 1.2 million children and two tetanus toxoid doses to 1.6 million women of childbearing age for the prevention of neonatal tetanus. Another factor in the success of the

campaign was the improvement of the established health infrastructure: the number of fixed vaccination centers increased from 800 in 1987 to about 1,800, thus ensuring that ongoing immunization activities could reach the vast majority of Moroccan children. The campaign also helped put health in the limelight, thus strengthening other health programs.

In April 1988, a nationwide survey of vaccination coverage showed that 84 percent of children between the ages of 12 and 17 months were fully immunized. These data are based on a combination of vaccination card documentation (WHO method) and mothers' recall. "Card only" data from the survey showed coverage rates of 65 percent for children between the ages of 12 and 17 months. According to results of a 1989 survey (see Appendix, No. 12), however, 73 percent of children in the same age group were completely vaccinated. Thirty-two percent of women between 15 and 44 years old had documented vaccination against tetanus. Immunization campaigns were subsequently carried out in 1988 and 1989. Coverage surveys conducted following these campaigns found that coverage levels continued to increase for children between the ages of 12 and 17 months. Reported incidence of vaccine-preventable diseases -- a better measure of program effectiveness -- has decreased at rates consistent with the vaccination coverage levels attained (see Figure 6). Indeed, the incidence of measles and pertussis (whooping cough) has declined to such low levels that one senior official indicated that reported cases should be verified by a physician, because mothers and most health workers have not seen enough of those cases to make the diagnosis. Urban vaccination coverage is consistently higher than rural coverage.

Despite its success, the immunization campaign strategy has been criticized for being overly donor dependent. The concern is that the health services may be unable to maintain current coverage levels without continuing annual campaigns. The question also arises of how long campaigns can be continued -- especially if donor support diminishes. The latter concern has abated with the signing of a World Bank Health Sector loan that will finance vaccines.

With the success of the vaccination effort, attention has shifted from vaccination coverage to disease reduction objectives. Morocco has embarked on efforts to reduce childhood diseases, specifically, to eliminate neonatal tetanus and poliomyelitis and, broadly, to improve prenatal care. This is an important shift, since the routine disease surveillance system appears not to be functioning adequately to detect high incidences of serious diseases. For example, a retrospective child mortality survey (Garenne 1989) to determine cause of death in infants found that 21 percent of neonatal deaths are due to tetanus. Another finding from that study indicated that much of infant and child mortality is concentrated in the neonatal period and could be prevented with better prenatal care and monitoring.

With this shift in focus, improved disease surveillance will become increasingly important. Health facilities were doing an impressive job developing charts that showed service statistics, disease incidence, and targets for coverage. However, there was no uniform evidence that local health staff were making the best use of these data. The Ministry of Public Health's statistics office is aware of this problem and will organize workshops to teach data analysis and use in the planning and management of 77 operations.

National Diarrheal Disease Control Program

In contrast to the family planning and immunization programs, the diarrheal disease control program has had relatively limited A.I.D. involvement. Although the program has never undergone a full-scale evaluation, it is not generally regarded as a success and there was insufficient time to analyze its problems fully. From document review, interviews, and observations, however, the evaluation team found some possible reasons for the program's lack of success.

First, whereas family planning and immunization are preventive approaches, diarrheal disease control relies largely on ORT, a palliative intervention that does not address the cause of the problem or prevent its recurrence. Second, the major difference in the Morocco setting is the organizational placement of both the diarrheal disease control and the nutrition program within the Maternal and Infant Services Division of the Ministry of Public Health. In contrast, the family planning program is itself a division and the immunization program is relatively autonomous. Moreover, both programs have considerably larger staff than do either the diarrheal disease control program or the nutrition program.

The third problem that has plagued the diarrheal disease control program is the Government's chronic difficulty with the production facility in Casablanca that produces the ORS packets. The facility started producing ORS in 1983 but never reached its productivity potential because of a variety of problems with staff, management, and equipment. In 1987, the program was reorganized with full-time management provided by a physician. In 1988, an attempt was made to revitalize the program by mounting a campaign to promote the use of ORT. The results of the campaign were modest in comparison with the immunization campaigns.

Control of diarrhea, especially the watery, dehydrating kind that responds well to ORT, remains a health priority in Morocco. A new Diarrheal Disease Control Action Plan has been prepared for 1990-1992. Whether the 1990 reorientation of the program toward case management will result in improvements is impossible to predict. Plans should be made, however, for an early evaluation of the diarrheal control program.

Growth Monitoring and Provision of Weaning Foods

Few data are available for assessing the nutritional status of Moroccan children. A comparison of a baseline anthropometric survey conducted in 1971 and the 1987 DHS shows that considerable improvements occurred during the period between surveys. The DHS concluded that acute malnutrition is practically nonexistent, but that chronic malnutrition, which causes stunting, remains common in 30 percent of rural and 17 percent of urban children.

Growth monitoring and the provision of a locally produced weaning food, Actamine, are the nutrition interventions used in the integrated Child Survival Program. Health education and counseling on breast-feeding and weaning are also carried out.

It is difficult to say how effective the nutrition program has been, given general improvements in Moroccan's living standards. Like diarrheal disease control, the nutrition program must be evaluated in the context of the most effective ways to identify children most at risk of malnutrition and target scarce Ministry of Public Health resources to them. Chronic malnutrition is declining but remains a health problem. Further evidence from the infant mortality cause-of-death study identified malnutrition as a contributing factor in as many as 55 percent of deaths in children under age 5 years. It appears that the Government of Morocco is taking steps to make the nutrition program more effective, beginning with a Plan of Action covering the next 5 years.

Integration of Child Survival Activities for Increased Effectiveness

Despite differences at the national level in the administration of the four components of Morocco's Child Survival Program, the program is remarkably well integrated at the service-delivery level. This integration ensures that mothers and children have access to the full range of services. It also results in the more valued but less effective components -- diarrhea control and nutritional activities -- pulling along the stronger, more effective components -- family planning and immunization. This synergy occurs, for example, when mothers seeking health care for treatment of an acute problem, such as diarrhea or acute malnutrition, are encouraged by health workers to have their children immunized and to use family planning services or, if appropriate, to begin prenatal care. The net result is that through these interventions, the child may be protected from or may be better able to withstand diarrhea or other acute conditions.

Program Efficiency

In spite of relatively rich data, it is difficult to obtain or produce precise estimates of program efficiency, particularly of cost-efficiency. It is impressive, however, that the Government,

with A.I.D. leadership, is addressing the data deficiencies. Nevertheless, the evaluation team was able to reach some conclusions about the efficiency of discrete program interventions and of some elements of the system as a whole.

Cost-Benefit Analysis : An Example From Family Planning

In preparation for Phase IV of the Family Planning and Child Survival project, USAID/Morocco carried out several economic and financial analyses. One of these, a cost-benefit analysis of family planning, demonstrated an extremely favorable cost-to-benefit ratio for the Government's family planning program: an investment in family planning would be paid back in reduced public spending in health and education within only 2 years. In this period of fiscal austerity, the Ministry of Public Health used this analysis in discussions with the Ministry of Planning to justify current levels of government support for family planning.

The preliminary family planning cost estimates prepared in connection with this exercise showed that the cost per couple-years of protection (CYP) of the urban VDMS Program was relatively high. This finding, together with tabulations from the 1987 DHS suggesting that the urban VDMS Program was substituting a public source of contraceptive supply for private pharmacy supply, contributed to the Government's decision to eliminate the urban component of the VDMS Program. The preliminary cost estimates also led to a greater emphasis in the new project on mobile point-of-contact sources of supply in rural areas. The cost-effectiveness of mobile services is also supported by more recent, improved estimates of family planning costs, which are reported in Table 6. (The estimates of family planning costs in Table 6 do not include urban VDMS services because the urban program had been terminated prior to 1989, the year for which these estimates were prepared.)

In addition to moving toward more efficient resource allocation within the public sector, A.I.D. is encouraging government efforts to involve the private sector more effectively in providing family planning services. One approach is through the social marketing of contraceptives. To date, A.I.D. has funded a condom social marketing project that is already exceeding its sales projections. For the first 6 months of 1990, projected sales of project condoms were 422,532 and actual sales were 384,078. But, by December 1990, actual sales had reached 1.2 million, while projected sales for the year had been set at 845,000. This project is expected to reach the break-even point by 1992. In addition, limited technical assistance, research, and advertising and marketing support will be provided to promote commercial pill sales through pharmacies beginning in 1990. The private sector is expected to reach 50 percent of all pill users by 1995 (compared with 20 to 30 percent now). Finally, current assistance supports the transfer of services to the private sector through such means as social marketing and employer-based services as well as an overall reform of

Morocco's system of financing health services.

Costs of Other Interventions

The costs and benefits of other interventions are less well known. The Government has estimated the cost of fully immunizing a child and the cost to treat a case of diarrhea with ORS in each province. These costs are in the range of 44 and 7 dirham, respectively. However, in each case costs refer to commodity and transport costs, not to fully loaded delivery of these interventions. A study currently under way estimates the cost of a vaccination at a fixed facility to be 7.5 dirham, compared with about 11 dirham by an outreach worker. For a child treated for diarrhea, the cost at a fixed facility is 20 dirham and 12 dirham per outreach.

Other Efficiency Concerns

A number of factors within the health system and the Child Survival Program are of continuing concern from the standpoint of program efficiency:

Fixed health facilities as a whole seem to be underutilized. In comparison with many other countries, the facilities are well staffed, well equipped, relatively accessible, but nonetheless serve few clients. A case in point is the Family Planning Reference centers. These centers seem to be particularly underutilized, with a resultant high cost for each client served (see Table 6).

Table 6. Annual Cost per Couple-Years of Protection (CYP), 1989 (family planning, all methods combined)

Fixed Facility Services (ambulatory only)	Cost/CYP (dollars)
Urban	
Health center	10.23
Dispensary	15.35
Family planning reference center	20.70
Rural	
Health center	13.37
Dispensary	13.60
Basic dispensary	15.23
Mobile Services	
VDMS/other itinerant	5.00
Mobile teams	1.74

Note: One CYP is assumed to equal 13 pill cycles or 140 condoms distributed or 0.4 IUD inserted or reinserted.

Source: 1990 Ministry of Public Health/OPTIONS Time Use/Cost Survey of 18 ambulatory health facilities in three provinces (Kenitra, Ben Slimane, Agadir).

Deployment of staff is an issue. Recruitment for entry-level practical nurses has been halted; as a result, rural facilities are extremely understaffed and unable to do major outreach or follow-up. Doctors, however, continue to be hired and are doing more routine work that could be done more efficiently by paramedics.

Female staff are in short supply. The program has been adversely affected by the lack of female health staff, particularly at the first point of interaction with the mother. Increasing the number of female itinerants, as well as female supervisors at all levels throughout the system, could have an extremely positive impact on family planning practice and child survival. Further, it would have the secondary impact of "opening" Moroccan society to greater female economic participation.

Operations research and careful, small-scale evaluation of alternative approaches, particularly at the local level, have not been used with any consistency. Since the initial successful VDMS experiment, testing of alternative delivery strategies has not taken place. Rather, approaches seem to be accepted and adopted wholesale. The list of untested strategies is long: the campaign approach, the expansion of VDMS, the adoption of the Soins de Santé de Base (SSB, primary health care) approach, the dropping of the urban VDMS worker, and the deemphasis on female mobile health workers. This means that one of the most important development lessons -- that interventions must be adapted to local community conditions -- is being ignored. What works in the urban areas of Casablanca may not work in the more remote, rural province of Chaoun, yet these variations are not being fully taken into account.

Program Sustainability

Given the key role that A.I.D. assistance has played in the Morocco Child Survival Program, USAID/Morocco’s intention to phase out this assistance by 1996 will require some hard decisions and innovation by the Ministry of Public Health if program accomplishments are to be sustained. Whether coverage levels attained through the immunization programs can be maintained -- even under the best of conditions -- is one question (see Approaching WHO’s Vaccination Coverage Objective, page 10). The future of family planning sustainability is equally uncertain: It appears unlikely that either public budgetary resources or the private sector will be able to close the resource gap for contraception; consequently, current contraceptive prevalence rates may drop.

The Ministry of Public Health recently took two actions to improve overall management efficiency and increase productivity, which should also improve the chances for sustaining current program accomplishments. They are (1) to decentralize management and decision-making and, hence, allocate resources more effectively and (2) to provide long-term management training to health staff at the provincial and lower levels, again with the goal of using resources more effectively.

Decentralization is expected to involve a greater role for local governments in planning and administering health care. The responsibility for financing the construction of new health facilities has already been transferred to local governments. Local governments are also responsible for designating individuals to receive free hospital care at public facilities (i.e., for identifying the indigent). Plans are currently under consideration to allow local governments to exercise more control over the services provided by these facilities, including the right to charge fees for some services and to exercise control over the use of the revenue they collect. Although many problems remain to be resolved, the expectation is that a decentralized health system will function more effectively than the old, highly centralized one.

The management training efforts are taking place at the Ministry of Public Health's National Institute of Health Administration (INAS), which, in 1989, began a new 2-year Ministry program to train public health program managers. A particularly interesting part of this program is practical training in conducting operations research on real problems. Such training bodes well for the Ministry of Public Health's capacity to solve problems and sustain programs. INAS will need strong leadership and innovative curriculum design, however, to move this concept along.

Another step toward overall program sustainability is A.I.D.'s strategy to have the Government of Morocco shift some of the burden for urban health care to the private sector. The premise is that urban residents generally have good access to and can afford private health care; by moving public health resources from urban to underserved rural areas, equity is expected to improve as well. This is a logical strategy but needs to accommodate the urban poor who, according to the World Bank, comprise approximately 30 percent of the population. There are concerns, however, about how successful the planned efforts will be.

In addition to efforts to improve overall program efficiency and to shift services to the private sector, sustainability is also being addressed within the context of individual program components.

The family planning program, as the longest running A.I.D./Ministry of Public Health Child Survival Program component, has experience

in addressing sustainability. The current A.I.D. family planning program is specifically directed toward sustainability. Some features of this plan are the phasing-out of A.I.D.-financed travel allowances to health workers, the phasing-out of support for purchasing commodities, and a shift to the private sector and social marketing. Although on its face the plan looks feasible, the question remains whether public budgetary resources or the private sector will take over those costs. This plan will require careful monitoring to ensure that financial sustainability is not achieved at the expense of reduced contraceptive prevalence. If the Government is unable or unwilling to reallocate funds for the purchase of contraceptives, and a donor does not provide them, the current apparent plateauing of contraceptive prevalence may continue. Indeed prevalence may even decline.

Concern is even greater for the sustainability of the accomplishments of the immunization program. When program activities began to accelerate in 1987, the immunization program became heavily donor-dependent (and donor-driven). Most knowledgeable people believe that in order for 80-percent vaccination coverage levels to be achieved and maintained, annual campaigns will have to be continued. A high degree of donor and non-Ministry of Public Health financing of the campaigns, however, makes them vulnerable to changes in donor priorities. Indeed, the very sustainability of the campaigns themselves is questionable.

Coverage levels will probably decline. It is unlikely, however -- especially because of the increase in fixed vaccination centers and the development of service strategies and systems -- that, even without the campaigns, coverage levels would fall to pre-1987 levels. Nonetheless, donor support for the immunization program appears to be waning. A.I.D. support was mostly for 1987 with no plans to resume; UNICEF support for vaccines and personnel is scheduled to end in December 1990; and Rotary International, although committed to continuing to provide support for the eradication of poliomyelitis, is a focused and relatively minor donor. It appears that the Ministry of Public Health will soon have to review its priorities for resource allocation if the immunization program is to maintain 80-percent coverage levels and, certainly, if it is to seriously address eradication of poliomyelitis and elimination of neonatal tetanus. Although the World Bank Health Sector loan will finance vaccine purchases if other donors do not provide them, it is less certain that funding will be available for the essential complementary training and research activities.

The issue of sustainability is not relevant to the National Diarrheal Disease Control Program in view of its low level of achievement to date. ORS packet production and distribution problems are being resolved. The Ministry of Public Health plans to pass some ORS production and marketing requirements to the private sector. Until the newly defined strategy of the

1990-1992 Action Plan is implemented, questions of sustainability are premature.

The need for specialized, targeted programs aimed at rehabilitating malnourished infants and children has diminished significantly. Efforts must still be made to promote breast-feeding, to improve maternal nutrition and prenatal care, and to promote appropriate weaning practices. The lead should be taken by Maternal and Infant Services and by VDMS workers through educational outreach services. The weighing of infants and children at outreach points is an appropriate way of identifying those who are faltering and need special attention. The distribution of Actamine by dispensaries and health facilities should be assessed against available commercial and traditional weaning foods.

In general, the Ministry of Public Health is becoming less dependent on donors. The implications for financing continuing activities are of concern, however. One way of addressing them is to increase the public's participation in financing its own health care. A.I.D. is currently working with the Government of Morocco to design a health care financing project that includes family planning/MCH sustainability as an objective.

Impacts of A.I.D.'s Assistance in Child Survival

A.I.D. child survival assistance has had both positive and negative effects. On the positive side have been improvements in health status and introduction of new technologies, whereas on the negative side, donor dependency has increased.

Improved Health Status

A.I.D. assistance has gone primarily to support the VDMS Program (including substantial training of health workers) and government-sponsored vaccination campaigns. As already explained, the main contribution of the VDMS Program has been to expand integrated family planning and MCH services to rural areas, thus eliminating the need for women to take the first step of seeking services from fixed facilities. The A.I.D.-assisted VDMS Program has played an important role in increasing contraceptive prevalence, particularly in rural areas, and more recently, in attaining current levels of vaccination coverage.

Although data are limited, the successful expansion of family planning appears to have had a significant impact on reducing infant mortality as birth intervals have increased and high-risk, high-parity births have declined. At the same time, the provision of child survival services has had the synergistic effect of increasing acceptability and use of family planning services.

The rapid expansion of immunization coverage has significantly

reduced the incidence of measles and whooping cough among vulnerable children. Data specifically linking immunization protection to changes in infant and child mortality or changes in nutrition status are not yet available, but such analysis is planned using 1991 census data and the DHS planned for 1992.

New Technologies and Options

One of the most important contributions of A.I.D. assistance has been the improved use of data collection and analysis to identify needs and to target resources more effectively. This is a strength: Morocco is far ahead of many other countries, even at the provincial level, in conducting surveys (see Appendix). There is a growing consciousness at the provincial level that coverage is important, that costs need to be controlled, and that different patterns of service delivery or use of resources may yield the same results or better. As an example, data from the 1987 DHS indicating that three-quarters of all women were delivering at home with no prenatal care or supervision are being used to focus efforts on maternal health and pregnancy monitoring. To have an impact on care, however, there needs to be more actual use and analysis of data for feedback on performance, especially at the provincial level.

The successful use of messages developed by private sector advertising firms in the vaccination campaign has changed the way the Ministry of Public Health views the mass media in promoting health practices. Similarly, the use of focus groups to improve the Ministry's understanding of the barriers and attitudes toward diarrhea treatment and management has introduced Ministry staff to a technology that can be applied in other child survival programs.

The effective involvement of the private sector firms and health providers in social marketing and the national campaigns has further persuaded Ministry managers to reassess their hesitant collaboration with the private sector. Local health plans, for example, now routinely identify private physician offices, clinics, and pharmacies as part of the local resource base. In addition, the Ministry has recently negotiated formal agreements with the National Phosphate Office and other parastatal and private firms to provide family planning services in their clinics. In these employer-based programs, the Ministry will provide contraceptives, training, and educational materials to clinic staff in exchange for regular reports. This new opening toward the private sector provides a means of extending coverage of health care. To make the best possible use of private sector involvement, A.I.D. and the Ministry of Public Health need to systematically study the possibilities and develop a strategy for using potential private sector resources. A.I.D. technical leadership in the field of alternative delivery systems has been key in engaging the Government to improve service delivery and resource management. The result has been improved management and resource allocation, adopted and incorporated

systemwide.

Successes have encouraged Ministry staff. Armed with charts and data documenting progress toward local health coverage goals, provincial health directors seem more confident in tackling child health problems and of finding new ways of making the best possible use of local resources. The process is just beginning but will be increasingly important as the program changes to meet the needs of the 1990s.

Increased Short-Term Donor Dependency?

In launching campaigns financed by donors, the Ministry of Public Health became more dependent on donor financing for critical material and promotional activities. For example, the Ministry ceased to purchase vaccines and relied on donors, primarily UNICEF, to supply them. When A.I.D. phases out gasoline and local travel costs, these too may not be picked up by the Ministry. However, because such program expenses are small, failure to have them assumed by the Ministry may not pose a critical problem.

Overall Program Impact

Of the four problem areas targeted by child survival interventions, A.I.D. recognized in the late 1960s that rapid population growth was the one most critically impeding all of the Agency's development efforts in Morocco. This analysis has been repeated and updated by USAID/Morocco and the Government of Morocco as new data have become available, and it has been confirmed independently by the World Bank in an analysis of poverty in Morocco. That an investment in family planning can be paid back within 2 years in terms of reduced spending on education and health is a strong indication of the impact of this intervention on overall development.

The integrated VDMS approach is one of the main strengths of the Ministry of Public Health's Child Survival Program, because of its flexibility and ability to remain relevant. Just how effective it is cannot be definitively shown. It is significant, however, that a key informant for the VDMS pilot study believes that, had A.I.D. permitted integrated services from the start, such remarkable strides in child survival would have taken place between 1980 and 1986 and the UNICEF campaigns would not have been needed. Although this hypothesis cannot be validated, it is indisputable that combining family planning and child survival interventions has made each more effective.

Relevance of the Program

Given the changing epidemiological situation in Morocco, it is prudent to question whether A.I.D.'s interventions continue to

respond to priority needs. Once again, the richness of relevant data, primarily resulting from the Agency's interest in tracking the demographic impact of its family planning assistance, provide some answers.

Some things have remained the same:

- Demographic momentum is such that, even with success in family planning, the young population poses enormous burdens on Morocco's health and education infrastructures and creates challenges for generating new jobs (see Figure 1 for an illustration of the population configuration).

- Diarrhea remains an important cause of childhood morbidity and mortality.

- For neonatal tetanus, a newcomer to the vaccination program, coverage remains low and its importance as a cause of death has become even greater.

- Steep differentials remain in the use and practice of family planning, by province, by urban or rural residence, and by education.

Yet, some things have changed. With new developments and successes with child survival interventions, the priorities for the 1990s are not those of the 1980s. Some of the more significant changes are as follows:

- Contraceptive prevalence appears to have plateaued and, indeed, may be declining. Family planning still relies heavily on short-term methods, especially on contraceptive pills (80 percent) and other temporary methods.

- Remote rural areas in provinces just coming into the outreach program may need to adapt mobility strategies, for example, using female outreach agents, community-designated points of contact, and mules.

- Cutbacks in services in the urban areas may have an undesirable effect on the provision of the full range of child survival interventions, particularly in periurban areas.

- Incidence of communicable diseases has declined significantly with the success of the vaccination effort, and Morocco has embarked on efforts to reduce childhood diseases, specifically to eliminate neonatal tetanus and eradicate poliomyelitis. With this shift in focus, improved disease surveillance will become increasingly important.

- Because of the decline in communicable diseases, attention has been turned to high rates of neonatal mortality and the need for better prenatal monitoring and attendant delivery.

- Nutrition has improved, but numbers of chronically malnourished children remain a health risk in the south and poorer periurban areas.

Current A.I.D. interventions are appropriate, given present circumstances. The Phase IV Family Planning and Child Survival project provides continued support for family planning, focusing on the need for making methods other than oral contraceptives available to a greater proportion of the population. A.I.D. is also assisting the Ministry in developing a more effective and integrated system of outreach services, placing greater emphasis on mobile teams and point-of-contact services. The project is also attempting to strengthen prenatal care and antidiarrheal treatment and to improve overall Ministry efforts in information, education, and communication (IEC). Finally, current A.I.D. assistance supports the transfer of services to the private sector through such means as social marketing and employer-based services, as well as overall reform of Morocco's system of financing health services.

Although the Agency's shift away from service-provision support to structural support in the health sector, particularly in the form of health finance reform, has the potential of improving the system's overall sustainability, there is also the risk that it may have negative consequences for access to health care by the very poor.

Future Directions for A.I.D.

Privatization and decentralization: What effects on health care delivery? The Government of Morocco is exploring a number of options to meet a growing demand and need for preventive health care services. In urban areas, social marketing of contraceptives, user fees for hospital care, expanded health insurance coverage, and privatization of medical services are being explored as ways to reduce public expenditures. Although replacing the public sector with the private sector as a source of services seems a reasonable approach, attention must be given to keeping health services accessible to the poor who reside in marginal urban areas. For rural areas, the government strategy to decentralize the management and financing of health services to local governments raises the possibility that health care may receive a lower priority under a decentralized system than under the current system. Government officials are aware of both these concerns. A.I.D. supports privatization as well as decentralization, but must monitor these trends for unintended adverse impacts on child and maternal health status.

Longer lasting contraceptive methods must be emphasized. Contraceptive pills, as a temporary method of birth control requiring sustained motivation, cannot fully address program needs. Longer lasting methods are needed. Steps have been taken to make IUDs more available, but acceptance is still low,

especially among rural women. New technologies, such as implants, should be promoted and made widely available as they are approved.

With the apparent leveling off of contraceptive use, more attention is needed on the demand side. Even without a family planning policy per se, Ministry of Public Health and local government support for family planning appears strong. With the apparent leveling off of contraceptive use, however, a renewed effort may be needed to return this element of the child health program to its high-priority position. Greater visibility of broad political support for Ministry family planning efforts would help, with more attention given to creating demand.

Disease surveillance: More diligence is needed. The high rate of neonatal deaths due to tetanus (see Approaching WHO's Vaccination Coverage Objective, page 10) indicates a failure of the tetanus toxoid vaccination effort to reach women of reproductive age. It also points to the need for strengthening the disease surveillance system.

Pregnancy monitoring and prenatal care are priorities. The finding that much of infant and child mortality is concentrated in the neonatal period (see Approaching WHO's Vaccination Coverage Objective, page 11) has led the Government to plan a broad package of interventions aimed at safe motherhood. The success of such an effort will depend in part on improving the contact rate between the health system and pregnant women, which in turn will hinge on more effective community-level communications, particularly those directed at men.

IEC for all aspects of A.I.D.'s Child Survival Program needs strengthening. The IEC program has been weak for all the public health interventions, perhaps because the unit in the Ministry itself is weak. The vaccination campaign demonstrated the effectiveness of combined media campaigns and the potential for private sector involvement. Lessons learned through these campaigns must be applied to other child survival programs as well. There are specific needs for more education in treatment and prevention of diarrheal diseases and for the involvement of men in family planning. There is some movement within the Ministry of Public Health to address these problems. An IEC strategy for family planning that will also include other interventions has been developed and is beginning to be implemented.

More attention must be given to mobilizing additional public sector resources and using existing resources more efficiently. Current plans are to terminate A.I.D. direct support for family planning and MCH services in 1996. It will therefore be necessary for the Government of Morocco to commit the resources required to absorb this shortfall and provide additional resources to meet increased rates of service utilization among a still rapidly growing population. Under these circumstances the Government

will have to eliminate as much waste as possible from the health delivery system through recourse to improved management practices.

Additional opportunities should be explored to increase synergy in the provision of child survival services. Current efforts to expand and improve prenatal care and improve the scope and quality of birth attendance should provide additional opportunities to promote longer lasting contraceptive methods and to monitor infant and child health (e.g., immunization and nutrition surveillance). The program should make conscious efforts to build-in as much synergy as possible into its integrated package of child survival services.

Key Factors Influencing Program Performance and Impact

A variety of events and factors have influenced the performance and impact of all components (child spacing, immunization, nutrition, and diarrheal disease control) of the A.I.D. Child Survival Program. Although most factors were positive, several negative elements constrained program implementation. Furthermore, the worsening economic climate provided a negative backdrop to the entire program.

Stalled Economic Growth

Following the dynamic growth of the 1960s and l970s, the economic reversal of the late 1980s, along with structural adjustment agreements, has adversely affected the Moroccan budget for social services. As a result of tough budget constraints and high-level policy dialogue, the Ministry of Public Health is taking steps to manage its limited resources more carefully. This orientation has translated into strong Ministry support for expanding the VDMS model to rural underserved areas. The process of restructuring and reforming the Moroccan health sector to make more effective use of the dynamic private sector will not be easily or rapidly accomplished. Even so, the Ministry now recognizes the need to redefine its role and to find mechanisms to limit its responsibility for the expensive hospital care and specialized services Morocco’s population is beginning to demand.

Cultural and Geographic Barriers

Culturally and linguistically, the Moroccan population is diverse. The populations of Rabat, Casablanca, and other urban centers have clearly different expectations and levels of awareness of public health needs than do the isolated rural groups of the south and the Atlas and Rif Mountains. The dispersed nature of the rural agricultural population has made implementing family planning and MCH programs logistically and financially difficult. The traditional role of women and their high level of illiteracy has challenged the program to adapt educational and informational materials to the needs of nonliterate groups and to use male

nurses for outreach activities, the latter a questionable decision for the long-term development of the country.

Demand for services has been historically weak, especially in rural areas. This has contributed to underutilized facilities and services.

Traditional behaviors and ignorance of modern health practices have added to high infant and child mortality. Inadequate prenatal care and diet, too closely spaced births, and poor weaning practices have contributed to nearly half of all infant and child mortality (Garenne 1989). Several other traditional behaviors, for example, mothers' failing to breast-feed their infant during the child's diarrheal episode, withholding food during illness, and abrupt and inappropriate weaning, have become the focus of the Government's health education programs. Other traditional beliefs, such as the fear of sterility from antitetanus vaccination and the IUD, are being specifically addressed in the current project.

Rapid urbanization has facilitated social change in general, and movement between the rural areas and the periurban squatter settlements has facilitated the introduction of modern health practices in rural, as well as urban areas. The Ministry's decision during the l980s to provide basic preventive MCH and family planning services to these groups appears to have facilitated their transition and integration into urban life.

Strong Ministry Leadership

The Ministry of Public Health has provided technical leadership and has been committed to creating and making its preventive primary health care system work. Its long-term vision of integrated preventive and primary health care, involving a tiered system of health care with an itinerant nurse at the base, is not unique, but the commitment to making it function has been significant. Although technical assistance from the A.I.D. Child Survival Program has provided the Ministry with mechanisms and organization for energizing the system, the Ministry's leadership has ensured that donor efforts and contributions, including those of A.I.D., are focused on building and strengthening Morocco's preventive health care system as the Ministry envisaged it. By ensuring that donor-directed vertical activities were minimized, duplication and false starts were avoided.

USAID/Morocco and the Ministry of Public Health recognized that the success of the Child Survival Program was due to the competence and diligence of a few committed Ministry officials at the central level. Although the Program has enjoyed remarkable management continuity, the situation is fragile. In 1989 a Ministry reorganization was planned to address this highly centralized management structure and make it less vulnerable in case of the loss of a key player.

Pragmatic Approach to Timing Program Interventions

The basic Ministry strategy regarding program interventions has been to strengthen the health system's delivery capacity before generating increased demand for services. In the mid-1980s, the A.I.D. Health Management project (608-0151) helped strengthen management of health personnel, vehicles, materials, and pharmaceuticals and prepare the Ministry of Public Health for better management of data used for making allocation decisions. The early focus on resource planning provided a base from which the additional A.I.D. child survival funds could be used effectively. This has had the effect of ensuring that rising demand can be met, even though service expansion has been slower and more deliberate than optimal.

The phasing in of the VDMS Program also reflected a pragmatic approach. The VDMS design was not complicated. It initially demonstrated that supervisory support, transport, and travel expenses for outreach visits and focused training could motivate existing health staff in the area of family planning, particularly at the lowest level. Convinced of the validity of this approach, Ministry officials moved to expand their reach. As additional health and child survival resources became available, they were applied first to the EPI and then to the diarrheal disease control program.

Donor Coordination

A.I.D. has over the years worked closely with the various donors to ensure that resources being provided were not duplicative. This effort has worked more smoothly in some areas than in others (e.g., in family planning as compared with the immunization campaign). In general, donor resources have been complementary and have provided the Ministry with a flexible package of resources to implement the VDMS outreach strategy.

Role of the Private Sector

Until very recently, the Ministry of Public Health has been reluctant to collaborate with the private sector in promoting or delivering preventive and primary care services. The successful mobilization of the nation and the private sector for the immunization campaign has helped create more positive attitudes toward involving private providers in basic services. Far more collaboration, however, should be possible on both the service level and the community-support level, but a breakthrough has been made.

The use of advertising firms to promote health interventions has similarly created new awareness of the uses of mass media and techniques such as focus groups to reach underserved groups.

As the Ministry of Public Health shifts from a service delivery role to a coordinating role, more attention to private-public

linkages will be necessary. Already large numbers of private physicians in urban areas must be sensitized to community public health needs and evolving preventive technologies if they are to serve their clients effectively.

Lessons Learned From the Morocco Experience

Providing a number of child survival interventions as a package is more effective than offering each separately. Although diarrhea control, nutrition programs, and acute care are the less effective interventions, they serve to attract women to health workers. Health workers are therefore in a position to promote other, possibly more effective, preventive interventions like immunization and family planning.

Giving priority to family planning and immunization is a valid strategy for a child survival program. The effectiveness of both family planning and immunization in reducing infant and child mortality and morbidity suggests that it is reasonable to give them priority in child survival programs. In Morocco, children spaced 4 or more years apart are only one-third as likely to die before their first birthday as are those born less than 2 years after their sibling (see Figure 5). Likewise, within a few years, a solid immunization program can virtually eradicate diphtheria, measles, and whooping cough, providing new opportunities to address other health problems such as neonatal tetanus.

Delivering child survival interventions through a rural outreach program is highly effective. One limitation of clinic-based services is the obstacle posed by the distance clients must travel to seek services when they live more than a few kilometers from a clinic. Providing services through an outreach program helps to eliminate this barrier by making services available to women either in their homes or at a convenient point of contact. In addition, an outreach program puts health workers in a position to promote a cluster of interventions, rather than just one. Thus, even when there is a great disparity at the central level in the funding and attention given to the separate components of a child survival program, at the village level, local health workers can succeed in giving equal emphasis to all interventions.

Careful phasing in of activities can lead to a more successful program. The success of the A.I.D. Child Survival Program can be traced back to the Agency having initially focused only on family planning interventions. A.I.D. moved into the broader range of child health interventions only after family planning had been firmly established and funds had become available. When A.I.D. became a contributor to the Child Survival Program, it met the needs of the country and complemented other donors in implementing the Government’s health delivery plan. The important influx of child survival funds was timely; it helped rejuvenate the Government’s

stagnating immunization program, coming just when the Government of Morocco was beginning the first EPI campaign. A.I.D.'s timely response to the needs of EPI strengthened the Mission's health program, which also paved the way for such policy dialogues as the one currently under way on health care financing. Had A.I.D. remained associated only with the family planning component of the Child Survival Program, the Agency might not have been able to raise this issue.

The Morocco model is replicable -- but its success cannot be divorced from the context in which it functions. The Morocco model of child survival programs is not unique; its most impressive features are found in other such programs worldwide. The Marrakech pilot programs were fully evaluated; data collection and utilization were done well; public will was developed to support the interventions and public resources were provided; substantial efforts were made to engage the private sector, first in EPI campaigns and now in family planning; and the technologies used were relatively simple and those most readily accepted offered a tangible benefit to the population -- vaccinations, family planning, and ORT.

Whether the overall approach can be replicated in other settings is more problematic. Morocco represents its own mix of social, economic, and religious characteristics to which these particular program approaches seem peculiarly well suited. It is important that in extending the VDMS approach to additional provinces, the lessons learned in successful provinces are heeded. Other countries can also learn much from the Morocco Program approach, although it may not be transferable in its entirety to different settings.

A family planning program can be successfully initiated even in the absence of a stated public policy. A strong family planning program can be put into place, even though there is no stated public policy on the issue. Family planning in Morocco is broadly supported by Government officials at all levels and by the general population, although there is no stated public policy on family planning. Had the program waited for legislative and other policy pronouncements, it might never have reached its present stage of acceptance. However, now that the demand for family planning services appears to have plateaued, strong statements by the country's leaders may be needed to reinvigorate the family planning program.

Properly motivated public sector health workers can provide good rural health care services. Health delivery in rural areas will continue to be dependent on public sector rural health workers, particularly on the itinerant nurse. The effectiveness of health delivery in the rural areas is in direct proportion to the motivation, training, incentives, and mobility provided to rural health workers. If A.I.D. does not intend to finance these investments in the future, A.I.D. policy dialogue and conditionality on other A.I.D. health-sector

investments should ensure that these needs are met from the Government of Morocco's own resources or by other donors (e.g., the World Bank).

Good quality data can make an effective contribution to program planning and evaluation. The Morocco Child Survival Program has an abundance of good data that have been used to advantage by key government decision-makers, program administrators, and donors to adapt, evaluate, and improve the program over time. For example, the results of the 1987 DHS, which showed lower levels of knowledge of longer lasting methods than were previously expected, were used by program administrators in the course of developing a revised IEC strategy for the family planning program. Government decision-makers used other DHS data, together with cost estimates, in deciding to terminate the urban VDMS Program. Donors used cost-effectiveness estimates in part to evaluate government plans to make greater use of mobile teams and point-of-contact services in the future.

The private sector needs to be involved as early as possible. The Morocco Child Survival Program has begun to make effective use of private sector resources. The vaccination campaigns made particularly effective use of private sector media resources. The Family Planning Program has experienced considerable initial success with the social marketing of contraceptives and some success in promoting employer-based services. Although these initial efforts are encouraging, it is clear that much more needs to be done in this area.

APPENDIX

1. Knowledge, Attitudes, Practices (KAP) Survey of Moroccan urban areas, undertaken in 1966. A limited analysis of the survey was done in 1967 by M. Mahfoud and published under the title "Enquête d'opinion sur le planning familial au Maroc," Le Journal de Médecine du Maroc, Casablanca, Morocco, Volume 3, No. 2, February 1967.

2. 1971 Census.

3. Enquête démographique de double collecte (Demographic Survey of Dual Record System), undertaken in 1972-1973 by the Centre de Recherches et d'Études Démographiques (CERED), Ministry of Planning, in collaboration with POPLAB, University of North Carolina. Results of this survey were published in 1976 under the title, Résultats de l'enquête démographique de double collecte (PGE/ERAD) de 1972-1973 (Publications du CERED No. 3, 4, 5, and 6, Rabat, Morocco, 1974).

4. A national nutrition survey was undertaken by the Ministry of Public Health in 1972, but only some preliminary results were published. Apparently, the data tape was lost somewhere in Europe and no comparison with the DHS results can be done at this time.

5. The Marrakech Survey to evaluate the impact of the Household Distribution of Family Planning known as Visites à Domiciles de Motivation Systématique (VDMS). Results of the survey were published under the title VDMS Marrakech: Visites à domiciles de motivation systématique (Household Distribution of Family Planning), (Rabat, Morocco: Ministry of Public Health, U.S. Agency for International Development and International Fertility Research Program, September 1981).

6. Enquête nationale sur la fécondité et la planification familiale au Maroc 1979-1980 (4 volumes, Rabat, Morocco). This national survey was undertaken by the Ministry of Public Health in collaboration with the World Fertility Survey. The results of the survey were published in 1984. Volume 3 contains a full section on mother and child health, "Santé de la Mère et de l'Enfant."

7. Enquête provinciale de prévalence contraceptive, 1981-1982 (Regional Prevalence Contraceptive Survey, 1981-1982). The survey was undertaken by the Ministry of Public Health in collaboration with Westinghouse Health Systems under the Contraceptive Prevalence Survey (CPS) project.

8. 1982 Census.

9. Planification familiale, fécondité et santé familiale au Maroc 1983-1984, Rabat, Morocco. The national survey was undertaken by the Ministry of Public Health in collaboration with Westinghouse Public Applied Systems under the CPS project. There is a section on maternal and child health "Santé de la Mère et de l'Enfant."

10. Demographic Multi-Round Survey undertaken by the Ministry of Planning in 1986-1987. Preliminary results are available at the Ministry of Planning, Rabat, Morocco.

11. Enquête nationale sur la planification familiale, la fécondité et la santé de la population au Maroc (ENPS) 1987. The survey was undertaken by the Ministry of Public Health in collaboration with the Institute for Resource Development/Westinghouse under the DHS project.

12. Immunization Coverage Survey, undertaken by the Ministry of Public Health in 1989 in collaboration with UNICEF. Results of this survey were published in international journals.

Bibliography

Akalay, O. 1989. "La vaccination au Maghreb." Commission Technique Maghrébine pour la Vaccination.

Bureau of the Census. 1989. World Population Profile: 1989. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census. September.

Catholic Relief Services. 1988. "Programme alimentaire compensatoire PL 480 Titre II, étude d'evaluation intermediare 1989." Rabat, Morocco.

Center for International Health Information, International Science Technology Institute. 1990. "Country Health Profile: Morocco, May 1990." Washington, D.C.

Fishman, Claudia. 1988. "Nutrition communication project reconnaissance visit, December 5-13, 1988." Academy for Educational Development, Nutrition Communications Project.

Garenne, Michel. 1989. "National Survey on Causes and Circumstances of Infant and Child Death: An Infant Mortality Study in Morocco." Office of International Health, Public Health Service, U.S. Department of Health and Human Services, Washington, D.C.

Gilmore, Judith W., Carol C. Adelman, Anthony J. Meyer, and Melvyn C. Thorne. 1980. Morocco: Food Aid and Nutrition Education. A.I.D. Project Impact Evaluation Report No. 8. Washington, D.C.: Agency for International Development. August.

Housni, El-arbi. 1990. "La seconde phase de la transition démographique au Maroc. "Service Central de la Planification Familiale, Ministère de la Santé Publique, Rabat, Morocco.

Knowles, James. 1989. "Benefit-Cost Analysis of the Moroccan Family Planning Program. "OPTIONS Project, Rabat, Morocco.

Leighton, Charlotte, Moncef M. Bouhafa, Miriam Labbok, Charles Tilquin, and William Trayfors. 1988. Mid-Term Evaluation of the Population and Family Planning Support Project, Phase III (608-0171) Morocco." Population Technical Assistance Project, International Science and Technology Institute, Inc. Arlington, Virginia.

LMS Conseil. 1988. "Étude formative PNI-TRO rapport étude quantitative C.A.P., vaccination, maladies diarrhéiques, sels de rehydratation orale." Technologies for Primary

Health Care (PRITECH) Project, U.S. Agency for International Development, Washington, D.C.

Ministère du Plan. Royaume du Maroc. 1986. "Consommation et depenses des menages 1984-1985." Premier Résultats Vol. 1: Rapport de Synthèse.

Ministère du Plan, Royaume du Maroc. 1987. "Plan d'orientation pour la developpement économique et social 1988-1992." July.

Ministère du Plan. Centre d'études et de recherches démographiques, direction de la statistique, Royaume du Maroc. 1988. "Situation démographique regionale au Maroc."

Ministère de la Santé Publique. 1988. "Programme national de lutte contre les maladies diarrhéiques, Royaume du Maroc, 4 Juillet-4 Aôut 1988." Programme National de Lutte Contre Les Maladies Diarrhéiques. Rabat, Morocco.

Ministère de la Santé Publique. Royaume du Maroc. 1989. "Enquete nationale sur la couverture vaccinale." Rabat, Morocco. June.

Ministère de la Santé Publique, Direction des Affaires Techniques, Royaume du Maroc. 1985. "Planification familiale fécundité et santé familiale au Maroc, 1983-1984, Rapport de l'enquête nationale de prévalence contraceptive." Rabat, Morocco. February.<%0>

Ministère de la Santé Publique, Direction des Affaires Techniques, Royaume du Maroc. 1988. "Le Programme de visites à domiciles de motivation systématique (VDMS), rapport de synthèse de l'étude operationnelle realisée par experdata." Rabat, Morocco.

Ministère de la Santé Publique, Direction de la Prevention et de L'Encadrement Sanitaire. 1990. "Seminaire atelier nutrition-developpement de l'Enfant." 28 Janvier 1990-2 Février 1990. Marrakech, Morocco.

Ministère de la Santé Publique, Services des Études et de l'Information Sanitaire, Royaume du Maroc, and Demographic and Health Surveys, Institute for Resource Development, Westinghouse. 1987. "Enquête nationale sur la planification familiale, la fecundité et la santé de la population au Maroc (ENPS)."

Ministère de la Santé Publique, Service des Études et de l'Information Sanitaire, Royaume du Maroc. 1989. "Annuaire de statistique du Ministère de la Santé Publique."

Plata, Santiago, and Gael O'Sullivan. 1989. "Trip Report-Morocco." USAID/Office of Population, Family

Planning Services Division. Washington, D.C.

Ross, John, Marjorie Rich, Janet P. Molgan, and Michael Pensak. 1988. "Family Planning and Child Survival: 100 Developing Countries." Center for Population and Family Health, Columbia University. New York.

United Nations. 1989. World Population Prospects 1988. Populations Studies No. 106. Department of International Economic and Social Affairs. New York: United Nations.

USAID/Rabat. 1986. "Child Survival Strategy Statement." Rabat, Morocco.

USAID/Rabat. 1986. "Project Paper Supplement Morocco: Population and Family Planning Support III (608-0171)." Rabat, Morocco.

USAID/Rabat. 1987. "Project Paper Amendment No. 2. Morocco: Population/Family Planning Support III (608-0171)." Rabat, Morocco.

USAID/Rabat. 1988. "Project Paper Amendment No. 3. Morocco: Population/Family Planning Support III (608-0171)." Rabat, Morocco.

USAID/Rabat. 1989. "Project Paper. Morocco: Family Planning and Child Survival IV (608-0198).<170> Rabat, Morocco.

World Bank. 1990. "Morocco's Reaching the Disadvantaged: Social Expenditure Priorities in the 1990s." World Bank Population and Human Resources Division, Country Operations Department II, Report No. 7903-MOR. Washington, D.C.: World Bank.

World Bank. 1990. World Development Report 1990. Washington, D.C.: Oxford University Press for the World Bank.